EBERLINE SERVICES

0064845

February 18, 2005

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Avenue
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R4-12-220-7200, SDG H2915

Dear Mr. Trent:

Enclosed is the data report for one solid sample designated under SAF No. F03-006 received at Eberline Services on December 20, 2004. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
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1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2915 was composed of one solid (soil) sample designated under SAF No. F03-006 with a Project Designation of: 200-PW-2/200-PW-4 OU – Borehole Soil Sampling.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The sample was analyzed in preparation batches with QC samples from SDG's H2925 (SAF No. F03-006) and H2936 (SAF No. F03-006).

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.5 Iodine-129 Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Mi Mann — 2/18/5

Melissa C. Mannion
Senior Program Manager

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H2915

SDG	7200
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_H2915

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	02/18/05

SDG 7200
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2915

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/18/05

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SDG 7200
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2915

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

SAMPLE SUMMARY

SDG 7200
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2915

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B1B5F4	200-PW2/216S-7,153-155.5	SOLID		R412220-01	F03-006	F03-006-295	12/15/04 09:20
Method Blank		SOLID		R412178-04	F03-006		
Method Blank		SOLID		R501031-03	F03-006		
Lab Control Sample		SOLID		R412178-03	F03-006		
Lab Control Sample		SOLID		R501031-02	F03-006		
Duplicate (R412220-01)	200-PW2/216S-7,153-155.5	SOLID		R412220-04	F03-006		12/15/04 09:20

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 02/18/05

EBERLINE SERVICES/RICHMOND

SDG 7200
Contact Melissa C. Mannion

SAMPLE DELIVERY GROUP H2915

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2915

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7194		Method Blank	SOLID						R412178-04	7194-004
		Lab Control Sample	SOLID						R412178-03	7194-003
7200	F03-006-295	B1B5F4	SOLID	90.9	136.9		12/20/04	5	R412220-01	7200-001
		Duplicate (R412220-01)	SOLID	90.9	136.9		12/20/04	5	R412220-04	7200-004
7229		Method Blank	SOLID						R501031-03	7229-003
		Lab Control Sample	SOLID						R501031-02	7229-002

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

SDG 7200
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2915

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
TH	SOLID	Thorium, Isotopic in Solids	7121-118	5.0	1			1	1	1/1		
Beta Counting												
TC	SOLID	Technetium 99 in Solids	7113-070	10.0	1			1	1	1/1		
Gamma Spectroscopy												
I	SOLID	Iodine 129 in Solids	7113-070	10.0	1			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Solids	7113-070	10.0	1			1	1	1/1		
H	SOLID	Tritium in Solids	7113-070	10.0	1			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	7113-070	10.0	1			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

WORK SUMMARY

SDG 7200
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2915

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUFFIX	ANALYZED	REVIEWED	BY	METHOD
B1B5P4			R412220-01	7200-001	C		01/31/05	02/03/05	MWT	Carbon 14 in Solids
200-PW2/216S-7,153-155.5		SOLID	12/15/04	7200-001	H		02/03/05	02/15/05	MWT	Tritium in Solids
F03-006-295	F03-006		12/20/04	7200-001	I		02/10/05	02/12/05	MWT	Iodine 129 in Solids
				7200-001	NI_L		02/05/05	02/16/05	MWT	Nickel 63 in Solids
				7200-001	TC		02/07/05	02/09/05	MWT	Technetium 99 in Solids
				7200-001	TH		02/08/05	02/10/05	MWT	Thorium, Isotopic in Solids
Method Blank			R412178-04	7194-004	C		01/31/05	02/03/05	MWT	Carbon 14 in Solids
		SOLID		7194-004	H		02/03/05	02/15/05	MWT	Tritium in Solids
	F03-006			7194-004	I		02/14/05	02/15/05	MWT	Iodine 129 in Solids
				7194-004	NI_L		02/05/05	02/16/05	MWT	Nickel 63 in Solids
				7194-004	TC		02/08/05	02/09/05	MWT	Technetium 99 in Solids
Method Blank			R501031-03	7229-003	TH		02/08/05	02/10/05	MWT	Thorium, Isotopic in Solids
		SOLID								
	F03-006									
Lab Control Sample			R412178-03	7194-003	C		02/01/05	02/03/05	MWT	Carbon 14 in Solids
		SOLID		7194-003	H		02/03/05	02/15/05	MWT	Tritium in Solids
	F03-006			7194-003	I		02/13/05	02/15/05	MWT	Iodine 129 in Solids
				7194-003	NI_L		02/05/05	02/16/05	MWT	Nickel 63 in Solids
				7194-003	TC		02/04/05	02/09/05	MWT	Technetium 99 in Solids
Lab Control Sample			R501031-02	7229-002	TH		02/08/05	02/10/05	MWT	Thorium, Isotopic in Solids
		SOLID								
	F03-006									
Duplicate (R412220-01)			R412220-04	7200-004	C		01/31/05	02/03/05	MWT	Carbon 14 in Solids
200-PW2/216S-7,153-155.5		SOLID	12/15/04	7200-004	H		02/03/05	02/15/05	MWT	Tritium in Solids
	F03-006		12/20/04	7200-004	I		02/10/05	02/12/05	MWT	Iodine 129 in Solids
				7200-004	NI_L		02/06/05	02/16/05	MWT	Nickel 63 in Solids
				7200-004	TC		02/04/05	02/09/05	MWT	Technetium 99 in Solids
				7200-004	TH		02/08/05	02/10/05	MWT	Thorium, Isotopic in Solids

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/18/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

SDG 7200
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2915

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAP No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
C	F03-006	Carbon 14 in Solids	C14_COX_LSC	1			1	1	1	4
H	F03-006	Tritium in Solids	906.0_H3_LSC	1			1	1	1	4
I	F03-006	Iodine 129 in Solids	I129_SEP_LEPS_GS	1			1	1	1	4
NI_L	F03-006	Nickel 63 in Solids	NI63_LSC	1			1	1	1	4
TC	F03-006	Technetium 99 in Solids	TC99_TR_SEP_LSC	1			1	1	1	4
TH	F03-006	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	1			1	1	1	4
TOTALS				6			6	6	6	24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

R412178-04 **Method Blank**

METHOD BLANK

SDG 7200	Client/Case no Hanford	SDG H2915	
Contact Melissa C. Mannion	Contract No. 630		
Lab sample id R412178-04	Client sample id Method Blank		
Dept sample id 7194-004	Material/Matrix	SOLID	
	SAF No F03-006		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	-0.076	0.25	0.44	400	U	H
Carbon 14	14762-75-5	-2.83	2.0	3.6	50	U	C
Nickel 63	13981-37-8	-1.01	1.8	3.1	30	U	NI_L
Technetium 99	14133-76-7	0.243	0.28	0.51	15	U	TC
Thorium 228	14274-82-9	N.A.			1.0		TH
Thorium 230	14269-63-7	N.A.			1.0		TH
Thorium 232	TH-232	N.A.			1.0		TH
Iodine 129	15046-84-1	-0.008	0.35	0.80	2.0	U	I

200-PW-2/200-PW-4 OU Borehl.SoilSamp

QC-BLANK #51347

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2915

R501031-03 **Method Blank**

METHOD BLANK

SDG 7200	Client/Case no Hanford	SDG H2915	
Contact Melissa C. Mannion	Contract No. 630		
Lab sample id R501031-03	Client sample id Method Blank		
Dept sample id 7229-003	Material/Matrix	SOLID	
	SAF No F03-006		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Thorium 228	14274-82-9	0	0.048	0.098	1.0	U	TH
Thorium 230	14269-63-7	-0.016	0.11	0.21	1.0	U	TH
Thorium 232	TH-232	-0.016	0.032	0.076	1.0	U	TH

200-PW-2/200-PW-4 OU Borehl.SoilSamp

QC-BLANK 51525

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 02/18/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

R412178-03 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7200 Client/Case no Hanford SDG H2915

Contact Melissa C. Mannion Contract No. 630

Lab sample id R412178-03 Client sample id Lab Control Sample

Dept sample id 7194-003 Material/Matrix SOLID

SAF No F03-006

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	13.4	0.64	0.44	400		H	13.0	0.52	103	82-118	80-120
Carbon 14	1620	33	7.9	50		C	1600	64	101	83-117	80-120
Nickel 63	273	6.6	3.1	30		NI_L	272	11	100	83-117	80-120
Technetium 99	120	2.3	0.49	15		TC	120	4.8	100	84-116	80-120
Thorium 230	N.A.			1.0		TH					80-120
Iodine 129	134	2.0	3.0	2.0		I	127	5.1	106	83-117	80-120

200-PW-2/200-PW-4 OU Borehl.SoilSamp

QC-LCS #51346

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

R501031-02 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7200 Client/Case no Hanford SDG H2915

Contact Melissa C. Mannion Contract No. 630

Lab sample id R501031-02 Client sample id Lab Control Sample

Dept sample id 7229-002 Material/Matrix SOLID

SAF No F03-006

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Thorium 230	46.1	5.2	0.35	1.0		TH	46.4	1.9	99	81-119	80-120

200-PW-2/200-PW-4 OU Borehl.SoilSamp

QC-LCS 51524

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

R412220-04 B1B5F4

DUPLICATE

SDG	7200			Client/Case no	Hanford SDG H2915
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R412220-04	Lab sample id	R412220-01	Client sample id	B1B5F4
Dept sample id	7200-004	Dept sample id	7200-001	Location/Matrix	200-PW2/216S-7,153-155.5 SOLID
		Received	12/20/04	Collected/Amount	12/15/04 09:20 136.9
% solids	90.9	% solids	90.9	Custody/SAF No	F03-006-295 F03-006

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	1470	46	4.2	400		H	1410	43	4.0		4	22
Carbon 14	0.603	1.7	2.9	50	U	C	2.32	1.9	3.1	U	-	
Nickel 63	-0.445	2.0	3.4	30	U	NI_L	0.553	2.1	3.6	U	-	
Technetium 99	0.313	0.16	0.54	15	U	TC	0.280	0.25	0.54	U	-	
Thorium 228	0.728	0.14	0.063	1.0		TH	0.706	0.14	0.071		3	43
Thorium 230	0.744	0.17	0.21	1.0		TH	0.844	0.18	0.21		13	48
Thorium 232	0.744	0.14	0.070	1.0		TH	0.722	0.14	0.088		3	42
Iodine 129	0.611	0.52	1.2	2.0	U	I	0.378	0.56	1.3	U	-	

200-PW-2/200-PW-4 OU Borehl.SoilSamp

QC-DUP#1 51317

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2915

R412220-01 **B1B5F4**

DATA SHEET

SDG	7200	Client/Case no	Hanford SDG H2915
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R412220-01	Client sample id	B1B5F4
Dept sample id	7200-001	Location/Matrix	200-PW2/216S-7,153-155.5 SOLID
Received	12/20/04	Collected/Amount	12/15/04 09:20 136.9
% solids	90.9	Custody/SAF No	F03-006-295 F03-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	1410	43	4.0	400		H
Carbon 14	14762-75-5	2.32	1.9	3.1	50	U	C
Nickel 63	13981-37-8	0.553	2.1	3.6	30	U	NI_L
Technetium 99	14133-76-7	0.280	0.25	0.54	15	U	TC
Thorium 228	14274-82-9	0.706	0.14	0.071	1.0		TH
Thorium 230	14269-63-7	0.844	0.18	0.21	1.0		TH
Thorium 232	TH-232	0.722	0.14	0.088	1.0		TH
Iodine 129	15046-84-1	0.378	0.56	1.3	2.0	U	I

200-PW-2/200-PW-4 OU Borehl.SoilSamp

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/18/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

Test TH Matrix SOLID
SDG 7200
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2915

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7121-118					
B1B5F4	R412220-01			7200-001	0.844
BLK (QC ID=51525)	R501031-03			7229-003	U
LCS (QC ID=51524)	R501031-02			7229-002	ok
Duplicate (R412220-01)	R412220-04			7200-004	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
200-PW-2/200-PW-4 OU Borehl.SoilSamp					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7121-118	2σ prep error 5.0 %			Reference Lab Notebook 7121 pg. 118												
B1B5F4	R412220-01			0.21	0.250			84		1084			55	02/08/05	02/08	SS-055
BLK (QC ID=51525)	R501031-03			0.21	0.250			79		876				02/08/05	02/08	SS-035
LCS (QC ID=51524)	R501031-02			0.35	0.250			75		162				02/08/05	02/08	SS-066
Duplicate (R412220-01) (QC ID=51317)	R412220-04			0.21	0.250			88		1040			55	02/08/05	02/08	SS-056
Nominal values and limits from method				1.0	0.250			20-105		150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-060	Soil Preparation, rev 7
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.24 ± 0.14
YIELD 82 ± 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

Test TC Matrix SOLID
SDG 7200
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2915

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 7113-070						
B1B5F4	R412220-01			7200-001	U	
BLK (QC ID=51347)	R412178-04			7194-004	U	
LCS (QC ID=51346)	R412178-03			7194-003	ok	
Duplicate (R412220-01)	R412220-04			7200-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	15	
200-PW-2/200-PW-4 OU Borehl.SoilSamp						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT XeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7113-070	2σ prep error 10.0 %	Reference Lab Notebook 7113 pg. 070														
B1B5F4	R412220-01			0.54	1.00			94		50			54	02/01/05	02/07	GRB-220
BLK (QC ID=51347)	R412178-04			0.51	1.00			102		50				02/01/05	02/08	GRB-227
LCS (QC ID=51346)	R412178-03			0.49	1.00			103		50				02/01/05	02/04	GRB-203
Duplicate (R412220-01) (QC ID=51317)	R412220-04			0.54	1.00			95		50			51	02/01/05	02/04	GRB-202
Nominal values and limits from method				15	1.00			20-105		50			180			

PROCEDURES	REFERENCE	
	TC99_TR_SEP_LSC	
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 4 SAMPLES			
MDA	0.52	±	0.049
YIELD	98	±	9

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/10/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

Test I Matrix SOLID
SDG 7200
Contact Melissa C. Mannion

METHOD SUMMARY

IODINE 129 IN SOLIDS
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2915

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Iodine 129	
Preparation batch 7113-070						
B1B5F4	R412220-01			7200-001	U	
BLK (QC ID=51347)	R412178-04			7194-004	U	
LCS (QC ID=51346)	R412178-03			7194-003	ok	
Duplicate (R412220-01)	R412220-04			7200-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	2.0	
200-PW-2/200-PW-4 OU Borehl.SoilSamp						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7113-070	2σ prep error 10.0 %			Reference Lab Notebook 7113 pg. 070												
B1B5F4	R412220-01			1.3	1.00			50	981				57	02/10/05	02/10	XSPEC-004
BLK (QC ID=51347)	R412178-04			0.80	1.00			95	601					02/10/05	02/14	XSPEC-004
LCS (QC ID=51346)	R412178-03			3.0	1.00			52	961					02/10/05	02/13	XSPEC-002
Duplicate (R412220-01) (QC ID=51317)	R412220-04			1.2	1.00			49	981				57	02/10/05	02/10	XSPEC-002
Nominal values and limits from method				2.0	1.00			20-105	300				180			

PROCEDURES	REFERENCE	
	I129_SEP_LEPS_GS	
	CP-024	Iodine-129, Sample Dissolution, rev 5
	CP-530	Iodine-129 Purification, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 1.6 ± 1.9
YIELD 62 ± 45

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/18/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

Test C Matrix SOLID
SDG 7200
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOLIDS
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2915

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 7113-070						
B1B5F4	R412220-01			7200-001	U	
BLK (QC ID=51347)	R412178-04			7194-004	U	
LCS (QC ID=51346)	R412178-03			7194-003	ok	
Duplicate (R412220-01)	R412220-04			7200-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	50	
200-PW-2/200-PW-4 OU Borehl.SoilSamp						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7113-070	2σ prep error 10.0 %			Reference Lab Notebook 7113 pg. 070												
B1B5F4	R412220-01			3.1	0.446			100		50			47	01/30/05	01/31	LSC-004
BLK (QC ID=51347)	R412178-04			3.6	0.400			100		50				01/30/05	01/31	LSC-004
LCS (QC ID=51346)	R412178-03			7.9	0.400			100		10				01/30/05	02/01	LSC-004
Duplicate (R412220-01) (QC ID=51317)	R412220-04			2.9	0.460			100		50			47	01/30/05	01/31	LSC-004
Nominal values and limits from method				50	0.400					25			180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 4.4 ± 4.7
YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

Test H Matrix SOLID
SDG 7200
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOLIDS
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2915

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium
Preparation batch 7113-070					
B1B5F4	R412220-01			7200-001	1410
BLK (QC ID=51347)	R412178-04			7194-004	U
LCS (QC ID=51346)	R412178-03			7194-003	ok
Duplicate (R412220-01)	R412220-04			7200-004	ok
Nominal values and limits from method 200-PW-2/200-PW-4 OU Borehl.SoilSamp				RDLs (pCi/g)	400

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7113-070 2σ prep error 10.0 % Reference Lab Notebook 7113 pg. 070																
B1B5F4	R412220-01			4.0	20.6			32					50	02/03/05	02/03	LSC-007
BLK (QC ID=51347)	R412178-04			0.44	20.0			33		50				02/03/05	02/03	LSC-007
LCS (QC ID=51346)	R412178-03			0.44	20.0			33		50				02/03/05	02/03	LSC-007
Duplicate (R412220-01) (QC ID=51317)	R412220-04			4.2	20.0			33					50	02/03/05	02/03	LSC-007
Nominal values and limits from method				400	20.0					25			180			

PROCEDURES REFERENCE 906.0_H3_LSC
CP-218 Tritium in Soil Samples by Azeotropic Distillation, rev 3

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 2.3 ± 4.2
YIELD 33 ± 1

2/18/5

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

Test NI_L Matrix SOLID
SDG 7200
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOLIDS
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2915

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Nickel 63	
Preparation batch 7113-070						
B1B5F4	R412220-01			7200-001	U	
BLK (QC ID=51347)	R412178-04			7194-004	U	
LCS (QC ID=51346)	R412178-03			7194-003	ok	
Duplicate (R412220-01)	R412220-04			7200-004	-	U
Nominal values and limits from method 200-PW-2/200-PW-4 OU Borehl.SoilSamp				RDLs (pCi/g)	30	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7113-070 2σ prep error 10.0 % Reference Lab Notebook 7113 pg. 070																
B1B5F4	R412220-01			3.6	0.500			83		50			52	02/04/05	02/05	LSC-007
BLK (QC ID=51347)	R412178-04			3.1	0.500			94		50				02/04/05	02/05	LSC-007
LCS (QC ID=51346)	R412178-03			3.1	0.500			94		50				02/04/05	02/05	LSC-007
Duplicate (R412220-01) (QC ID=51317)	R412220-04			3.4	0.500			86		50			53	02/04/05	02/06	LSC-007
Nominal values and limits from method				30	0.500			30-105		25			180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 7
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-280	Nickel-63 Purification, rev 3

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 3.3 ± 0.49
YIELD 89 ± 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/18/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2915

SDG 7200
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2915

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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Protocol Hanford
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Version 3.06
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SAMPLE DELIVERY GROUP H2915

SDG 7200
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2915

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SAMPLE DELIVERY GROUP H2915

REPORT GUIDE

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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REPORT GUIDE

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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GUIDE, cont.

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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SDG 7200
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2915

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP H2915

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Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
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Case no SDG_H2915

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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GUIDE, cont.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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SDG 7200
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2915

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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SDG 7200
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2915

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

SDG 7200
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2915

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/18/05

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-006-295	PAGE 1 OF 1

COLLECTOR Pope/Pfister/Wiberg/Tyra	COMPANY CONTACT LC Hulstrom TELEPHONE NO. 373-3928	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN DATA TURNAROUND
SAMPLING LOCATION 200-PW2/216-S-7, ~~155-157.5~~ 153-155.5 ft	PROJECT DESIGNATION H2915 (7200) 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	SAF NO. F03-006	AIR QUALITY ☐ 45 Days / 45 Days
ICE CHEST NO. GRP-03-009	FIELD LOGBOOK NO. / COA 119153ES10	METHOD OF SHIPMENT Federal Express	
SHIPPED TO Eberline Services	OFFSITE PROPERTY NO. SU PTR 14598	BILL OF LADING/AIR BILL NO. SU PTR 14598	

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegitation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS

SPECIAL HANDLING AND/OR STORAGE
RADIOACTIVE TIE TO: ~~B18502~~ B1B591 MOD 12/16/04

PRESERVATION	None
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	[redacted]
B1B5F4	SOIL	12-15-04	0920	✓

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Karin [signature]	12-15-04 1420	David Tyra MO024 FAC #1	12/15/04 1420
MO024 RH	12/16/04 1030	M.H. Baird [signature]	12/16/04 1030
M.H. Baird [signature]	12/16/04 1030	Fed Ex	
Fed Ex	12/20/04 10:00	[signature]	12/20/04 10:00

SPECIAL INSTRUCTIONS
(1)Technetium-99; Isotopic Thorium {Thorium-232} Carbon-14; Iodine-129; Nickel-63; Tritium - H3;

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: Fluor Hanford City Richland State WA

Date/Time received 12/20/04 CoC No. F03-006-295, 315

Container I.D. No. GRP 03-009 Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

INSPECTION

1.	Custody seals on shipping container intact?	Yes [Y]	No [ ]	N/A [ ]
2.	Custody seals on shipping container dated & signed?	Yes [Y]	No [ ]	N/A [ ]
3.	Custody seals on sample containers intact?	Yes [Y]	No [ ]	N/A [ ]
4.	Custody seals on sample containers dated & signed?	Yes [Y]	No [ ]	N/A [ ]
5.	Packing material is:	Wet [ ]	Dry [Y]	
6.	Number of samples in shipping container: 2	Sample Matrix Soil		
7.	Number of containers per sample: _____	(Or see CoC ✓)		
8.	Samples are in correct container	Yes [Y]	No [ ]	
9.	Paperwork agrees with samples?	Yes [Y]	No [ ]	

10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [Y]
11. Samples are: In good condition [Y] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies: _____
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by _____ Date: 12/21/04 Time: 8:00 AM

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe
B1B5F4 = (120 ml) – for chem.							
B1B5H2 = (can/ground wire) – for Shaw.							

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. _____ Calibration date _____